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ABSTRACT

A survey of 88 users of SISMAKOM, a computerized selective dissemination of information (SDI) and document delivery service provided by the Universiti Sains Malaysia and four other Malaysian universities, was conducted in August 1982 in order to collect data about SISMAKOM and to assess the value of a computerized SDI service in a developing country. The SDI service, which is based on the Chemical Abstracts (CA) and the Food Science and Technology Abstracts (FSTA) databases, has been offered to college instructors and selected personnel in private businesses and the government since November 1980. Approximately 78% of the respondents indicated that they were better informed since they started using the service; 30% of the respondents were already aware of the existence of more than 60% of the information supplied; respondents reported a saving of 3 hours per week due to use of SISMAKOM; 90% of the respondents wanted to continue using SISMAKOM and 40% of these were willing to begin paying for the service; and 62% of the respondents expressed a need for retrospective searches. This publication presents descriptions of the SDI project and survey methodology and results, a series of recommendations for SDI services in developing countries, and a sample questionnaire (in Malaysian with an English translation). (ESR)

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PGI-83/WS/16

The Evaluation of Sismakom

(computerized SDI project)

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THE EVALUATION OF SISMAKOM

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PREFACE

In the 20th Approved Programme and Budget of Unesco, a pilot project for the provision of information services by university libraries to users outside the university was proposed in the following terms:

"In order that the utilization of information resources of university libraries may serve more actively the needs of development sectors in developing countries, a project will be launched to develop a plan for the design of techniques for the provision of relevant scientific, technological and other information for use by the community outside the university" (20 C/5, para 5156).

It is well known that the information resources of developing countries are very scarce and it is difficult to sensitize policy makers to the importance of information availability and use. On the other hand, many developing countries often devote a large share of their national budget to education, including higher education. It thus seemed worth exploring whether the information resources available to the university, professors, researchers, students, could be offered to groups outside this institution such as government officials, staff in firms in private business, industries and agriculture, agricultural extension workers, etc... The specific purposes of the pilot project are first to see whether this is feasible at all and second, to which extent it is feasible without harming the services to the normal clientele of the university libraries.

The pilot project was implemented in two universities in Malaysia: Universiti Sains Malaysia and Universiti Pertanian Malaysia, one oriented towards science and technology, the other towards agriculture. Both universities conducted surveys in order to define more precisely the information needs of the potential clientele. After the surveys, in the area of agriculture,

it was decided to offer a newsletter in the field of agriculture, which would be not only a news bulletin, but also an abstracting review. In the area of science and technology, an experimental SDI service was launched with Unesco assistance. The present document reports on the survey made with the users of the SDI service on the basis of the Guide for the establishment and evaluation of services for selective dissemination of information (PGI-78/WS/22).

The Division of the General Information Programme welcomes any comments on this report, which should be sent to:

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INTRODUCTION TO THE SDI SERVICE

ORIGIN

On January 28, 1980 Unesco signed a contract with Universiti Sains Malaysia "to develop in close cooperation with Unesco, a computerized service of selective dissemination of information". This project known by the Malay acronym of SISMAKOM was launched in November 1980, as part of Unesco's pilot project to provide information to users outside the university community. However, the SDI service was offered to users both within and outside the university community and was based on two data bases namely the CA search and FSTA. *

With the assistance of Unesco, the CAN/SDI software package was acquired for the purpose of providing the computerized SDI service. Together with the CDS/ISIS software package for information retrieval, the CAN/SDI package was installed at the University's Computer IBM 370/148 in March 1980. The task of installation was carried out by Mr. Mike Sherwood, a Unesco consultant from the Asian Institute of Technology, Bangkok. The Head of Automation and Research of the Library and a programmer from the Computer Centre also assisted in the installation.

USERS OF THE SDI SERVICE

The list of users for this service was selected from the results of a user survey carried out from May to October 1980. The list identifies users from the University community, government, statutory and research institutes and the private sector, especially the food processing and manufacturing industries.

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* CA : Chemical Abstracts
FSTA : Food Science and Technology Abstracts

...2/-

The computerized SDI service uses the CA search and FSTA data bases and therefore the service was provided to users whose information and research needs fall within these subject fields. When the service was implemented in November 1980, there were 55 users. In June 1981, 15 new users were selected for the service, of which 13 were from the University and 2 from the Fisheries Research Institute.

In February 1982, the SDI service was extended to four other universities in the country. A training workshop on profiling and system operation was organized by the Library on the 10-11 February, 1982 for search editors from the other universities. The current number of users from this group is 49, that is 10 each from Universiti Kebangsaan Malaysia and Universiti Malaya, 9 from Universiti Teknologi Malaysia and 13 from Universiti Pertanian Malaysia.

Currently there are 102 users. There were breaks in the service in the case of users from the university who went for their sabbatical leave. During the period November 1980 to December 1982, 20 users stopped using the service. These users included those who resigned from their organizations (8), those who did not find the service useful (7) and those who refused to evaluate the service and were dropped (5).

...3/-

PROFILE BUILDING

Profile building is a relatively new area of activity within the experience of the library staff. Seven professional staff from the Library were selected as search editors to undertake profile building for the SDI service. In this way, the Library hopes to develop a core of expertise in profile building to support its computerized SDI service. In connection with this, an input sheet providing information about profile number, search editor code, name and address of user, description of the search topic(s) as well as profile words and search expressions for direct key-punching into the computer was devised.

A briefing on the method and procedure for profile building as well as the computer operations of the system was conducted for the search editors on 25 September 1980.

During the period November 1980 to December 1982, a total of 7 meetings were held at regular intervals to check on the progress of the service. Such meetings enabled the search editors to report on problems that were encountered and enabled us to monitor the progress of the service satisfactorily.

In the provision of the service, the importance of feedback from the users had been emphasized. In order to facilitate the compilation of statistics about hit rates and profiling, a standard form was designed for use by the search editors.

...4/-

OPERATION OF THE SYSTEM AND PHOTOCOPY SERVICE

In order to provide the SDI service the tapes were selected weekly initially since there was a cumulation of tapes. Subsequently, the frequency of selection was altered to a fortnightly cycle for CA search and a monthly cycle for FSTA to coincide with the issue of the tapes. On the whole there were no major problems in the operation of the system. However during the period the service was offered, delays were experienced. One factor which contributed to delays was the change in the record format of the source tape. This was experienced in the conversion of the CA search tapes, which prior to volume 97 did not pose a problem. However, from volume 97 onwards the conversion program for CA search has to be amended to accommodate the format change which contributed to delays in the selection of records. In the case of the FSTA tapes, the change in records from upper to upper-lower characters in volume 81 no.2 resulted in no hits being selected for a brief period of time. All the delay in processing would be avoided if format changes were notified in advance by the tape suppliers.

To date 86 selections were conducted using the CA search tapes. The total number of hits generated was 66,172. 28 selections were made against the FSTA tapes and the total number of hits was 7,160. The average percentage of relevant hits for CA search was 52% and for FSTA, the figure was 61%.

...5/-

During the pilot project, users of the service were given free photocopies. To date, 2,015 photocopy requests have been fulfilled. About 1/3 of the requests could be supplied from the university library. Items which were not available were ordered from the British Library, the National Library of Australia, NTIS and the Chemical Abstracts Service. Other university libraries in the system were unable to offer this service.

...6/-

BACKGROUND AND OBJECTIVE OF THE SURVEY

BACKGROUND

In August 1982, the Universiti Sains Malaysia Library launched a survey to evaluate the SISMAKOM Service. This evaluation constitutes the final phase of the Unesco Pilot Project to provide a computerized SDI Service to the university community and personnel in government, statutory bodies and the private sector.

The questionnaire used in this survey was designed by the library staff, and subsequently refined with the assistance of Mr. Chan Huan Chiang, a staff member of the Centre for Policy Research, Universiti Sains Malaysia. 88 questionnaires were circulated to the users of the SISMAKOM Service in early August 1982. Some of the users who were on sabbatical were excluded from the survey. A copy of the questionnaire is attached as an Appendix.

In September follow-ups were undertaken. The teaching staff of the university and other users in Penang were reminded by telephone calls. In the case of users from other local universities, follow-up was by letter and telex.

Of the total users surveyed, an overall return of 63 or 71.5% was achieved. Actual analysis of the survey was undertaken using the computer. For this purpose, the SPSS (Statistical Package for Social Sciences) was used.

...7/-

OBJECTIVE OF SURVEY

The purpose of the evaluation survey was to collect data about the SISMAKOM Service and to assess the value of a computerized SDI Service in a developing country like Malaysia. The data collected will be presented under four main headings : Profile, Information and Performance of Service, Impact of SDI Service on Information Needs, Improvements to the Service, Summary of Findings and Recommendations.

PROFILE INFORMATION AND PERFORMANCE OF SDI SERVICE

Part 2 of the questionnaire relates to questions about profiling and performance of the service. In the provision of the SDI Service, several search editors were used to construct the user profiles and monitor the progress of the service by means of regular feedback from the users. The search editors were requested to answer part 2 of the questionnaire on the basis of the statistics and other information that they collected.

PROFILE FORMULATION

In constructing the profiles, the search editors were guided by the *CAN/SDI Profile design manual 5th ed.* (Canada Institute for Scientific and Technical Information, 1975). In general they found the manual to be adequate, although there was no clear explanation on how weighted term search could be undertaken. It is a truism that the construction of a good and accurate profile is a key factor in ensuring the success or failure of an SDI Service. The problem is in determining what constitutes a good profile in quantitative terms. Obviously a search profile that results in an output which meets the reader's needs can be considered good.

However, different users have different requirements and even the same user may have different requirement at various times. This will become more evident in the section where we discuss the performance of the SDI Service.

In general it may be said that an attempt was made to keep the number of search terms low. Thus 40 of the 63 respondents had profiles where the number of search terms was 20 and below. This constituted 63.5%, while only 2 persons had profiles with search terms in excess of 50. Table I below shows the distribution of the profiles by the number of search terms.

TABLE 1. DISTRIBUTION OF PROFILES

No. of search terms	No. of profiles	%
1 - 10	11	17.5
11 - 20	29	46.0
21 - 30	10	15.9
31 - 40	8	12.7
41 - 50	3	4.8
51 - 60	2	3.2
TOTAL	63	100.00

An attempt was also made to maintain a relatively high precision ratio by keeping the number of hits to below 20 per run if possible, and profiles were amended as often as necessary for this purpose.

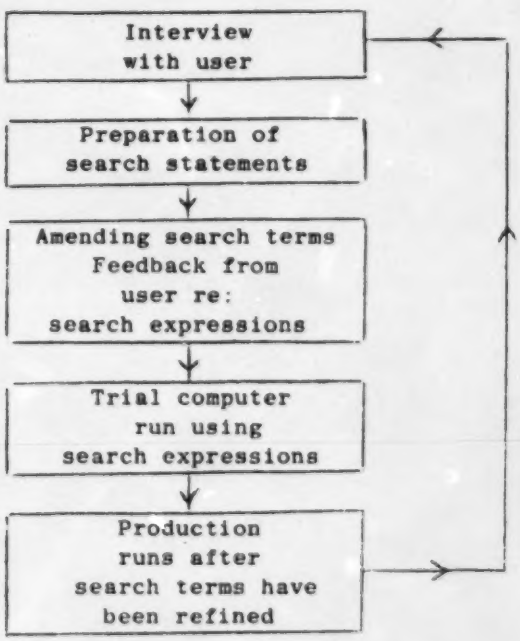
An examination of the number of times amendments were made may give the impression that the search editors had relatively no

problems in constructing the profiles. This was far from the truth. In point of fact, at least 67.9% of the profiles were amended more than once while 32% were amended between two and three times.

PROFILING TIME

The search editors were asked to comment on the average number of hours spent on profile building. This question was not clearly understood and most of the search editors took it to mean the actual process of constructing the profiles (i.e. completing the input sheets) once the topics, concepts and search terms had been identified. Thus 71.4% of the profiles were said to have taken between one and two hours, while 19% recorded profiling time of between three and four hours.

Based on the experience of the search editors at Universiti Sains Malaysia, the whole process of profile construction can be shown diagramatically as follows:


Interview with user
Preparation of search statements
Amending search terms Feedback from user re: search expressions
Trial computer run using search expressions
Production runs after search terms have been refined

This whole process on the average took 4 months. Thus only in the fifth month was it possible to do production runs on a regular basis.

PROBLEMS ENCOUNTERED

The difficulties involved in constructing satisfactory profiles stem from several reasons. The major problem stems from the fact that the SISMAKOM System was based on the delegated search method. In this mode of searching the user or person needing the information delegates the responsibility for finding the information to a librarian or other information specialist. Such a mode contains some inherent weaknesses. For example, the user may not be able to convey clearly his needs. A better understanding of the capabilities of the system as well as of the coverage of the databases concerned would have been useful, for experience has shown that the user has a strong tendency to ask for what he thinks the system can give him rather than to ask for what he is really looking for.

The failure of the search editors to understand what the user wanted also posed a problem. The search editors reported that 52.4% of the profiles were difficult to elaborate because they lacked the adequate subject knowledge to formulate the profiles adequately.

Even when the search editor had the requisite subject knowledge, there was difficulty in accurately interpreting the requester's requirement.

The CAN/SDI system is not "thesauri-bound" and allows natural language searches. While there are some advantages in using a system that allows a free-text search as opposed to a controlled vocabulary search, the very nature of a natural language system also leads to other problems. These problems are well-known. For example, while a controlled vocabulary or thesauri-based system

will reduce the problems of synonyms and allow related term searches through a hierarchical or cross-reference structure, a free-text search creates problems of syntactic and semantic ambiguity, and profiles using this must be properly constructed to be effective.

PERFORMANCE OF SDI SERVICE

The performance of an SDI Service is related to its effectiveness in meeting the needs of its users.

This is dependent on a number of factors such as the following:

(a) the nature of the database used, e.g. its coverage in terms of subject, time span and comprehensiveness, its uniqueness, the time lag, accuracy and consistency of indexing and/or abstracting, degree of vocabulary control, etc.

(b) document delivery service

(c) precision ratio

(d) factors relating to user-system interaction

In respect of (a) there were not many comments relating to the databases used. There were, however, some indirect references to the non-currency of *CA Search* and in respect of one university in Kuala Lumpur, very few of the outputs proved to be of relevance to the users. The non-relevance may, however, have been due to poor profile construction and other factors not related to the databases themselves. Generally speaking, *CA Search* had a greater appeal to users because of its extensive and comprehensive coverage than *FSTA* which tended to be of use to a relatively small group of users from Universiti Sains Malaysia and Universiti

Pertanian Malaysia (University of Agriculture, Malaysia), where degree programmes in food science and technology are provided, and from the industrial sector involved in canning and food production.

The importance of a document delivery service in supporting and enhancing the capability of an SDI Service cannot be over-emphasized. The ability of an information system to guarantee the delivery of a hard copy will undoubtedly increase its effectiveness. In most cases, document delivery under the SISMAKOM Service was in the form of photocopies and these were obtained from various sources, the chief ones being the internal resources of the library, BLLD and Chemical Abstracts Service. The effectiveness of a document delivery service is related to its speed of supply and satisfaction rate (i.e. the percentage of documents requested that were successfully supplied). During the period of the SISMAKOM project there was an attempt to supply documents within two weeks of a request being received. But this was seldom achievable because many of the documents had to be obtained from overseas sources. The average speed of supply was in the region of 4 weeks. The satisfaction rate was good and was in the region of 93%.

There is no doubt that the success or failure of an SDI Service rests in no small measure on the performance of the document delivery system. Users give considerable weightage to availability and ease of accessibility to documents.

The precision ratio refers to a measure which indicates the ratio of relevant documents to the total number retrieved. It has been called by Lancaster a signal-to-noise ratio and is best illustrated by the equation:

$$p = \frac{a}{a+b} \times 100$$

where p = precision ratio

a = relevant documents retrieved (hits)

b = non-relevant documents retrieved (noise)

One good indicator of the effectiveness of a computerized information service is the precision ratio. There does not seem to be a consensus in the literature on what constitutes an "acceptable" level of precision. There is no doubt that the higher the precision ratio the less the effort the user will need to expend in separating relevant items from those that are not relevant. Nevertheless, it should be noted that even a low precision ratio may be "acceptable" to a user if a few relevant hits from a large number of retrieved items meet his information needs. In view of the difficulty of determining what constitutes an "acceptable" precision ratio, we have arbitrarily decided that a precision ratio of above 50% can be considered as good or acceptable. As shown in table 2 for *CA Search*, 48.3% of the profiles recorded this percentage rating. Out of this total 25.9% recorded a precision ratio of 51-70% and 22.4% of the profiles had a precision ratio of 71-100%. A precision ratio of under 30% was recorded by 36.2% of the profiles.

TABLE 2. PRECISION RATIO FOR CA SEARCH

Precision ratio (%)	Profiles	
	No.	% (Adjusted)
less than 10%	7	12.1
11 - 30%	14	24.1
31 - 50%	9	15.5
51 - 70%	15	25.9
71 - 100%	13	22.4
Not using service	5	-
	63	100.00

A higher precision ratio was recorded for FSTA users with 53.3% reporting a precision ratio of over 50%.(Table 3). The precision ratio for 33.3% of these users was above 70% while 20% had a precision ratio of 51-70%. Only 20% of the FSTA profiles had a precision ratio of 30% and below. On the basis of the precision ratio rating one could therefore conclude that the performance of the SDI Service was satisfactory.

TABLE 3. PRECISION RATIO FOR FSTA

Precision ratio (%)	Profiles	
	No.	% (Adjusted)
less than 10%	2	13.3
11 - 30%	1	6.7
31 - 50%	4	26.7
51 - 70%	3	20
71 - 100%	5	33.3
Not using service	48	-
	63	100.00

However, it is useful at this stage to lodge three caveats against this general conclusion. Firstly, the term "relevance" or "usefulness" which are used in the precision ratio measure may be said to be subjective and not always consistent. If a user decides that a particular document that has been retrieved matches his requirement, we automatically assume that the document is useful to him or is relevant. However, the recognized needs and actual needs of a user may change. Thus a document may match the recognized need of a requester one day but no longer on the following day. His perception of his need has changed. As Lancaster has correctly pointed out:

> "It would be wrong to assume that relevance represents a precise, invariant relationship; it does not. In fact, rather than saying that a document is relevant to a request, it would be better to say that the document has been judged relevant to the request of a particular individual or group of individuals.
>
> Since relevance decisions of this type are subjective and quite likely to be inconsistent, it may be dangerous to use a single set of relevance decisions, that is made by one individual, as the basis for an evaluation of the performance of a retrieval system." (Lancaster, F.W. *Information retrieval systems: characteristics, testing and evaluation.* 2nd. ed. New York: J. Wiley, 1979, p.261-262).

The second caveat relates to an inability to use the recall ratio as a measure of the performance of the SDI Service. The recall

ratio refers to the ratio of all the relevant items in a database that a search profile is able to retrieve. This can be expressed as an equation as follows:

$$r = \frac{a}{a+c}$$

where r = recall ratio

a = No. of relevant documents retrieved (hits)

c = No. of relevant documents in the database not retrieved (misses)

We were unable to use this ratio because of our inability to calculate the total number of all the relevant documents that each search profile should retrieve. Recall and precision tend to have an inverse relationship. A high recall using a broad search strategy would tend to result in low precision and *vice versa*. A high recall is usually required by a person beginning a long-term research project since he would want to be sure that he has not missed anything of importance. Regretfully, we were unable to calculate this ratio.

Finally, the performance of the information system is also affected by the user-system interface. In an ideal system, there is constant feedback and interaction between the user and the system until the search strategy effectively matches the user's needs. In practice, the search editors had problems communicating with the users not only in determining the user's needs, but in getting feedback from users relating to the usefulness or otherwise of the output produced. The system itself was a source of problems and production delays were caused by (a) a few search editors not

taking their responsibilities seriously; (b) problems in the computer centre; (c) problems of accessing some issues of the databases due to data corruption; (d) format changes which necessitated program amendments in the CAN/SDI software. While these problems were solved as they occurred, there is no doubt that production delays militated against the efficiency of the SDI Service with its emphasis on the currency of information.

IMPACT OF SDI SERVICE ON INFORMATION NEEDS

USER INFORMATION

Users of the SISMAKOM Service comprised mainly of lecturers from Universiti Sains Malaysia. Lecturers from the other universities, namely Universiti Malaya, Universiti Pertanian Malaysia, Universiti Kebangsaan Malaysia and Universiti Teknologi Malaysia became users of the service in February 1982. In addition to lecturers, selected personnel in the government and manufacturing sectors were also using the service. The majority of the respondents that is 79.4% were lecturers and 20.6% were users from the outside community. The lecturers from Universiti Sains Malaysia who were using the service, were mainly from the School of Chemical Sciences and the School of Applied Sciences. As for the other universities, the users were chiefly from the Department of Chemistry, the Department of Biochemistry and the Department of Food Science and Technology. Users from the manufacturing sector consisted of technical managers, chemists, a food technologist and a metallurgist. From the government sector the users were fisheries research officers and chemists.

The SISMAKOM Service was started in November 1980. The survey

showed that 46% of the respondents were using the service for a period of 12-18 months. Lecturers from Universiti Sains Malaysia and personnel in the manufacturing sectors belong to this category of users. Users who were using the service for a period of 6 months constituted 54%. This group consisted of lecturers from Universiti Kebangsaan Malaysia, Universiti Malaya, Universiti Pertanian Malaysia and Universiti Teknologi Malaysia who were given the service in February 1982. The majority of the respondents (96.8%) did not have any breaks in the service.

In the evaluation, users were asked to comment on whether there were other persons using the output of their profiles. The analysis showed that 39.7% of the respondents were not using the service alone. They in fact allowed friends, colleagues and students to use the retrieved references. Colleages in the same department and students constituted the two largest groups using the service. From the observation made, 21 (or 33.3%) of the users allowed colleages in the same department to use the service. Users who had students using the service accounted for 15 (or 23.8%). Of those who shared the service with others, 76% were sharing it with 2-4 persons. Respondents who had 5-6 users and more than 6 users only accounted for 20%.

USEFULNESS OF SDI SERVICE

On the whole the SISMAKOM Service had been rated as useful by the respondents. (Table 4). Only a small percentage of respondents that is 3.2% did not find computerized information service to be useful and preferred to carry on with traditional methods of information search. Of those who found the SISMAKOM Service useful, 4.8% relied solely on the service for information, 39.7% felt that

computerized information service was extremely useful and 33.3% found computerized system to be frequently useful. Of the respondents who considered computerized service to be useful, only 19% rated it as useful occasionally.

TABLE 4. USEFULNESS OF SDI SERVICE

Category	Users	
	No.	%
Rely solely on	3	4.8
Extremely useful	25	39.7
Frequently useful	21	33.3
Useful occasionally	12	19
Traditional methods	2	3.2
	63	100.0

IMPORTANCE OF THE SDI SERVICE

An attempt was made to evaluate the importance of the retrieved references to the users. They were therefore asked to rate the retrieved references according to a scale ranging from those which were of immediate interest and use to those of no relevance or interest. It was postulated that if the information was of immediate interest and use to an individual, a Current Awareness Service would be the very type of service required by that individual. On the other hand, if most of the information supplied while of interest would be of no immediate use, a demand search service such as that provided by an online service might be more appropriate.

TABLE 5. IMPORTANCE OF SDI SERVICE

% OF REFERENCES	COMMENTS BY USERS									
	(1)		(2)		(3)		(4)		(5)	
	No. users	%	No. users	%	No users	%	No. users	%	No. users	%
1-10%	19	30.2	23	36.5	20	31.7	31	49.2	27	42.9
11-20%	9	14.3	14	22.2	14	22.2	8	12.7	11	17.5
21-40%	15	23.8	5	7.9	14	22.2	10	15.9	4	6.3
41-60%	8	12.7	2	3.2	7	11.1	3	4.8	4	6.3
more than 60%	12	19.0	19	30.2	8	12.7	11	17.5	17	27.0

(1) = Of immediate interest and use

(2) = Of interest but already found elsewhere

(3) = Of interest but not for immediate use

(4) = Cannot determine interest because not enough details

(5) = Irrelevant and of no interest.

From Table 5, it is encouraging to note that a high proportion of users (36.5%) found that between 21% and 60% of the retrieved references were of immediate interest and use, while another 19% found that more than 60% of the references were of immediate interest.

The majority of the respondents (58.7%) indicated that only about 1-20% of the retrieved references had been found elsewhere. This is an indication of the usefulness of the SDI Service to these respondents. However, a fairly large proportion (30.2%) of the respondents also indicated that more than 60% of the references could be found elsewhere. This statistic can be interpreted in two ways.

Firstly, it could mean that the question was misunderstood. The respondents might have been under the impression that they were being asked to indicate whether they were aware that the retrieved references could be found from other sources. The second interpretation is that the databases concerned were not current enough so that by the time the outputs were sent to the users, they had already come across the references from other sources.

On balance, the latter explanation is more probable. It is generally known that databases which require considerable intellectual input, e.g. *FSTA* which contains abstracts, are less current than databases which require less intellectual input, e.g. *Science citation index*. The time period for an item to be included in a database after publication can range from two months to twelve months. Obviously a current awareness service cannot be considered very successful if many of the references cited are already known to the users from other sources.

Whether the retrieved references are of immediate use is an important observation of an SDI Service. There seems to be some link between a highly active researcher and his need for current information and the immediacy of use of that information. It was found that 53.9% of the respondents rated that 1-20% of the information that were retrieved were not for immediate use although of interest. In addition, 33.3% found that 20-60% of the retrieved references although of interest were not for immediate use. A fairly small percentage (12.7%) rated more than 60% of the retrieved references to be not for immediate use. For this group of respondents, a current awareness service may not be entirely appropriate. Indeed a service that will provide a "one off" literature search on request may be more suitable.

One of the factors which can influence the usefulness of an SDI Service is the provision of adequate details, such as abstracts, for the retrieved references. The lack of details will also affect evaluation of the usefulness of the citations. Many of the respondents (61.9%) reported that they were unable to determine the value of up to 20% of the references that were provided, and another 17.5% were unable to evaluate over 60% of the outputs sent to them. It is obvious that if abstracts had been provided, this problem could have been minimized.

Although 60.4% of the respondents indicated that only 1-20% of the citations were irrelevant, at least 27% indicated that more than 60% of the citations were irrelevant. It is probable that this latter group were from institutions where the profile formulation was not properly done.

SAVINGS IN TIME

It is to be expected that a computerized SDI Service should bring about savings in time used for information search. In view of this, users were asked to give time estimates in hours per typical working week for information search before using the computerized service and with computerized service. It was found that the majority of the respondents 32 (or 50.7%) spent less time on information search since they started using the service.

With computerized services, a saving of 97 hours for the 32 respondents was recorded per week. On average, each user indicated a saving of 3 hours per week. Hence, over a period of one year the saving in time per user is significant amounting to 156 hours.

TABLE 6. SAVINGS IN TIME

Hours Saved Per Week	No. of Users	Total Hours Saved
1	5	5
2	10	20
3	6	18
4	5	20
5	3	15
6	2	12
7	1	7
TOTAL	32	97

The time used can be converted into monetary units by using the hourly cost per researcher. A cost analysis of the time used for scanning for information is as follows:

1. Search conducted by Librarian @ $6.50/hr.
2. Search conducted by lecturer @ $7.60/hr.
3. Search conducted by research assistant @ $5.75/hr.

The time savings when considered in monetary terms is very substantial. It has been estimated that scanning for information manually will cost between $5.75-$7.60 per hour. Hence, a saving of 156 hours is actually a saving of $897 - $1185 per year in monetary terms. From an economic point of view, a computerized service is beneficial for users who regularly scan for information.

BETTER INFORMED

An information system is designed to meet the expressed needs of its users for information. This is a tautological statement that

needs no elaboration. But as many of us are aware, the level of needs is always higher than the demand (i.e. expressed needs) because not all information needs are converted into demand.

"The state of need", as Kochen has termed this situation, is latent. A good analogy would be to liken this state of need to a person floating in limbo. For this need to come alive, so to speak, or to become an expressed need (which in turn is translated into a demand or a request) two catalysts are needed. First, the need must be recognized; second, the need must be aroused.

It is a truism that information systems can only respond to the expressed needs of individuals and not to their latent information needs. Only when an individual recognizes his need for information and is sufficiently aroused will he take steps to satisfy it. And only when his needs are expressed can the information service respond to them.

However, in a developing country like Malaysia, information needs are often latent and are not recognized. They are also not aroused. Consequently, it is frequently the responsibility of the librarian or information specialist to encourage an awareness of the need for information as well as to arouse the individual to do something about this need. It is therefore not enough to measure the impact of the information service by merely concentrating on its ability to satisfy the expressed needs of its users.

How can a user be aroused and made to become aware of his need for information. One obvious way will be to expose him to the range of literature in his field that he was never aware existed.

In this respect, the SISMAKOM Service was quite successful. In the evaluation, users were asked to comment on whether the service had improved their knowledge of the availability of journal articles in their fields of interest. The analysis showed that 81% of the respondents recorded an improvement in awareness. In other words, the service had revealed the existence of journal articles that they would not normally have come across in the normal course of their work.

Respondents were also asked whether they felt that they were now better informed as a result of the computerized information service. The majority (77.8%) indicated that they were better informed since they started using the service. This is a very encouraging response. There were however 22.2% who felt that they had not benefitted from using the computerized information service in that they were not better informed. This percentage may comprise users from the other universities who have had limited exposure to the service because quite a large number of users (54%) had been using the service for less than six months. A period of use of six months may perhaps be too short to enable a user to really feel the impact of an SDI Service.

Some of the users also indicated that a wider range of databases was required. As only 2 databases were used for the service, the information needs of some of the users could not be adequately fulfilled.

USEFULNESS OF PHOTOCOPIES

A photocopy service is generally considered an important aspect of the provision of an SDI Service. During the period the service was provided users from Universiti Sains Malaysia, manufacturing and government sector were provided free photocopies. From our observation,

the number of photocopies requested for represented 28% of the useful hits.

Users of the service were asked to comment on whether the photocopies which were supplied were useful. The analysis showed that 88.9% of the respondents who received the photocopy service, rated the photocopies supplied as useful. It should be noted that users from other universities in Kuala Lumpur were not provided a photocopy service. Hence 42.9% of the respondents did not answer this question.

USEFULNESS OF FOREIGN LANGUAGE REFERENCES

In the provision of the SISMAKOM Service foreign language references were included. Users were therefore asked to evaluate the foreign language references. 28 (or 44.4%) of the respondents rated foreign language references as useful and 23 (or 36.5%) were unable to make a decision on this matter. It was found that a small percentage of respondents (19%) considered foreign language references not to be useful.

On the whole, respondents wanted foreign language references to be included in the service. This was indicated by 47 (or 74.6%) of the respondents. On further analysis, it was obvious that all respondents who rated foreign language references as useful wanted foreign language references to be included. Of the respondents who rated foreign language references as not useful, 33.3% however indicated that foreign language references should not be excluded. Similarly 34.8% of those who could not decide as to the usefulness of foreign language references also wanted to include foreign language references.

CONTINUATION OF SDI

The SISMAKOM Service was started in November 1980 as a pilot project with financial support from Unesco. When the pilot project ended in 1982 other sources of finance had to explored. An important factor which will determine the continuation of the service is whether the users want to continue using the service. Users were therefore requested to make a decision on this matter. It was found that 57 (or 90.5%) of the respondents wanted the service to be continued.

In relation to this users were also asked to comment on payment for the service. Only 23 (or 36.5%) of the respondents indicated willingness to pay for the computerized service. 25 (or 39.7%) of the respondents however were not willing to pay for the service. Those respondents who could not make a decision on this issue constituted 15 (or 23.8%) of the respondents.

The poor response to this question may be due to the fact that most of the users were employees working in organizations and as such were not willing to involve their employers in any financial commitment. It is fairly obvious that many people tend to overlook the fact that a person who conducts his own search for information is in fact not getting information free. Earlier in the report it had been explained that a computerized service would result in a saving of $897 - $1184 a year per user. Hence if users were aware of this, they would be more willing to pay for a computerized service.

Only 23 (or 40.4%) of the respondents who wanted to continue using the service indicated willingness to pay. Respondents who indicated willingness to pay for the service were asked to specify

the amount that they or their organizations were willing to pay annually per database. To this 19 (or 82.6%) indicated that payment should range between $150 - $200. Only 8.7% of the respondents agreed to an annual rate of between $201 - $250 and $251 - $300. Generally it has been observed that users in developing countries are reluctant to pay for information.

IMPROVEMENTS TO THE SDI SERVICE

Users were asked to comment on aspects of the service in which improvements were needed. A high proportion of the respondents 39 (or 61.9%) expressed the need for retrospective searches. In the evaluation, users were asked to indicate how many years of retrospective searching would seem reasonable. The majority, 40 (or 63.5%) wanted retrospective searches covering a period of five years and more.

A desirable improvement to the service is to provide a free document delivery service. 41.3% of the respondents indicated that obtaining copies of the retrieved references directly by themselves was difficult. This indicates that such a service should be provided through an institution. It is most likely that this comment was made by users from other universities who were not provided a free document delivery service.

The service should also consider increasing the number of pertinent references. In relation to this, it was suggested that literature on the capabilities of the search and on drawing up search profiles should be made available to the end users. It was also suggested that more databases should be made available in

order to give a wider spread of subjects to the users.

Some of the users expressed the need for an on-line service where users are allowed to conduct their own searches. For this group perhaps an SDI Service is not really required.

The need for a translation service was also expressed. Foreign language references in Russian, Japanese, Italian and other European languages are well covered by CA Search and FSTA. The provision of a translation service would increase the accessibility of information for the users.

An SDI Service is useful only if the service is kept up-to-date. Hence the service should be geared to selecting the most current tapes. In the provision of the service, there were delays in the selection of hits.

In order to improve the service it was suggested that the citations should include more details. As for CA Search the provision of abstracts would help to increase the usefulness of the retrieved references. It was also indicated that the format of the printouts could be improved. A simpler feedback system was also suggested.

SUMMARY OF FINDINGS AND RECOMMENDATIONS

With the launching of the SISMAKOM Service, a computerized SDI Service was introduced to many users in Malaysia. This service constitutes a new development in the provision of an information service in the country. The evaluation of this service has enabled Universiti Sains Malaysia Library to collect data about the

SISMAKOM Service as well as assess the value of a computerized SDI Service in Malaysia.

Users of the SDI Service consisted mainly of lecturers (79.4%) and personnel from the manufacturing and government sector (20.6%). The survey showed that 46% of the users were using the service for a period of 12 - 18 months.

From the observations made, the average profile comprised the following features. The majority of the users had profiles where the number of search terms were 20 and below and the average time period required to perfect a profile was four months. One of the major problem associated with profile formulation stems from the fact that the service was based on the delegated search method where the user delegated his information needs to the search editors. It was reported that 52.4% of the profiles were difficult to elaborate because the search editors lacked adequate subject knowledge.

The effectiveness of an SDI Service is related to the database used, the document delivery service, the precision ratio and factors relating to user-system interaction. On the whole the use of the CA Search and FSTA databases to provide the SDI Service proved to be of relevance to the users. However in cases where the outputs were not relevant, they were the outcome of poor profile construction or other factors and not related to the databases.

The provision of a free document delivery service contributed to a meaningful use of the SDI Service. Document delivery was in the form of photocopies and users in Universiti Sains Malaysia appreciated

this service as it brought about easy access to relevant documents.

A precision ratio is a good indicator of the effectiveness of a computerized SDI Service and we accepted a rating of above 50% as good or acceptable. On the basis of this rating the performance of the service was satisfactory. For CA Search 48.3% of the profiles recorded a precision ratio of 51 - 100%. Out of this total 25.9% recorded a precision ratio of 51 - 70% and 22.4% had a precision ratio of 71 - 100% A higher precision ratio was recorded for FSTA with 53.3% reporting a precision ratio of over 50%. The precision ratio for 33.3% of these users was above 70% while 20% had a precision ratio of 51 - 70%.

A good user-system interface requires constant feedback and interaction between the user and the system. Our experience with the service showed that the search editors had problems communicating with the users in order to determine their needs and get feedback about the output produced. Although problems associated with the system and production delays were solved as they occurred they nevertheless militated against the currency of the SDI Service.

The SDI Service brought about beneficial impact and it was recorded that 77.8% of the users indicated that they were better informed since they started using the service. The service had been rated as useful and it was shown that 4.8% of the users relied solely on the service for information. In addition to this 39.7% rated the service as extremely useful while 33.3% considered the service to be frequently useful.

The evaluation showed clearly that there were two groups of respondents, one of which had more use for a Current Awareness

Service than the other. The group that would benefit from the SDI Service comprised those individuals who found that a high percentage of the retrieved references were of immediate use. On the other hand, the other group comprised individuals who needed information but with a degree of immediacy that is low. For this group, a service in which searches are undertaken on demand might represent a better and more suitable type of service.

Although there is no conclusive evidence, it appears that the databases are not as current as would be desirable. This is the tentative conclusion based on the fact that 30.2% of the respondents indicated that they were already aware of the existence of more than 60% of the information supplied. The non-currency of the system will definitely militate against the effectiveness of the current awareness service.

The lack of details in the citation did not pose many problems. Nevertheless, it is evident from the responses received that a fairly large percentage of the respondents were unable to evaluate the relevance or otherwise of the retrieved references from their titles alone.

The SDI Service was quite successful in keeping the users better informed in their fields of interest. The analysis showed that 81% of the respondents had improved their knowledge about the availability of journal articles in their fields of interest. In addition the majority of users (77.8%) indicated they were better informed since they started using the service.

In the provision of the service, users indicated that foreign

language references should be provided. 74.6% of the respondents reported that outputs should include foreign language references. However in order to increase the accessibility of information to the users, a translation service should be provided.

Savings in time used for information search is considered a positive impact of a computerized SDI Service. The experience with the SISMAKOM Service had shown that the majority of the respondents (50.7%) indicated spending less time in information search since they started using the service. With computerized services, a saving of 3 hours per week or 156 hours per year was recorded by each user. From an economic point of view a saving 156 hours is significant as it represents a saving of $897 - $1185 per user a year.

Among other factors the continuation of the SDI Service depends on whether the users want to continue using the service. From the observation made, the majority of the respondents (90.5%) would like to continue using the service. However only 40.4% of this group indicated a willingness to pay for the service and the majority (82.6%) agreed to pay $150 - $200 per database. With the high cost of operating the SDI Service, it will only be economical for the library to continue the service if there are at least 100 users.

A major improvement that was recommended in respect of the service was the provision of retrospective searches. This need was expressed by 61.9% of the users. A period of five years and more was suggested.

It was also suggested that the provision of a free document delivery service would be desirable. The provision of such a service would help reduce the difficulties faced by users in obtaining copies of retrieved references directly by themselves.

Other aspects of the service which needed improvement were directly related to the usefulness of the retrieved references. In order to improve the number of pertinent references literature on the profiling system and search methods should be made available to the end users. The need for an on-line service was also suggested. Users also recommended that the currency of the tapes used for the service be improved, more details be provided for the citations and the feedback system be made simpler.

On the basis of the survey the following recommendations can be made in respect of the SDI Service.

1. Although the SDI Service is useful and there is demand for its continuation, the prohibitive cost of implementation will compel us to phase out the service unless we can get 100 users willing to pay for the service.

2. The SDI Service in the case of the CA Search Database will be terminated as soon as all the tapes received for the period have been searched.

3. The SDI Service based on the FSTA Database will probably continue for a little bit longer on condition that the concessionary rate to the subscription of the tapes is maintained by the producer.

4. Generally, it has been observed that users are reluctant to pay for a computerized SDI Service in a developing country. However, if tape producers are willing to provide concessionary rates for the subscription to tape service as well as to waive profile and hit charges for searches, it may be possible for institutions to provide a subsidized service by charging users a nominal sum for the SDI Service.

5. The role of the search editor is an important one. In this respect, proper training of the search editors, either by providing a resource person from an established institution or sending the chief search editor for attachment elsewhere, would be necessary to provide a more effective and worthwhile SDI Service.

PERPUSTAKAAN UNIVERSITI SAINS MALAYSIA

PENILAIAN PERKHIDMATAN SISMAKOM
(EVALUATION OF THE SISMAKOM SERVICE)

	Sila tanda dengan bulatan mana yang berkenaan *(Please circle appropriate code)*	Untuk kegunaan Rasmi *(For Official use only)*
	Kod *(Code)*	Kolum *(Column)*
Jenis Kad: *(Card type):*	1	1
Kod Profail: *(Profile Code):*	☐☐☐☐	2-5

KETERANGAN ASAS
(BASIC INFORMATION)

1. Pekerjaan:
(Occupation):

2. Organisasi:
(Organization):

KESAN PERKHIDMATAN SISMAKOM
(IMPACT OF SISMAKOM SERVICE)

3a. Bila anda mula menggunakan Perkhidmatan SISMAKOM?
(When did you start using the SISMAKOM SERVICE)?

Tahun: *(Year):* Bulan: *(Month):* ☐☐☐☐ 6-9

b. Jika perkhidmatan ini dihentikan buat seketika, sila nyatakan jangkamasa itu: .....
(If there is any break in the service in your case, please specify the period): ..... ☐☐ 10-11

4. Pada keseluruhannya adakah anda merasa yang anda sekarang lebih maklum dari sebelum perkhidmatan berkomputer ini disediakan?
(Generally do you feel better informed now than before the computerized information service was available to you)?

(a) Ya *(Yes)* 1 12

(b) Tidak *(No)* 2

	Sila tanda dengan bulatan mana yang berkenaan *(Please circle appropriate code)*	Untuk Kegunaan Rasmi *(For Official use only)*
	Kod *(Code)*	Kolum *(Column)*
Apakah kesan Perkhidmatan SISMAKOM terhadap kecekapan anda dalam pencarian maklumat? *(What impact has the SISMAKOM SERVICE on your information gathering ability)?*		
(i) Adakah anda mengambil masa yang kurang dalam pencarian maklumat sejak anda mula menggunakan perkhidmatan berkomputer? *(i) (Do you spend less time now on information search since you started using computerized service)?*		
(a) Ya *(a) (Yes)*	1	13
(b) Tidak *(b) (No)*	2	
(ii) Berikan anggaran masa yang diambil mengikut jam dalam satu minggu kerja yang biasa. *(ii) (Give time estimates, in hours per typical working week):*		
(a) Sebelum perkhidmatan maklumat berkomputer: ..... jam bagi satu minggu biasa. *(a) (Before computerized information service .....hours per typical week).*	⌊__⌋	14-15
(b) Dengan perkhidmatan maklumat berkomputer ..... jam bagi satu minggu biasa. *(b) (With computerized information service ..... hours per typical week).*	⌊__⌋	16-17

Soalan ini adalah penting untuk penilaian. Sila luangkan masa supaya anggaran dapat dibuat dengan baik. *(This question is important for the evaluation. Please take your time to give the best estimates you can provide).*

	Sila tanda dengan bulatan mana yang berkenaan *(Please circle appropriate code)*	Untuk Kegunaan Rasmi *(For Official use only.*
	Kod *(Code)*	Kolum *(Column)*

6. Berdasarkan pengalaman anda dengan Perkhidmatan SISMAKOM, bagaimana dapat anda menilai rujukan yang dipilih mengikut lima kumpulan yang berikut:
(From your experience with the SISMAKOM SERVICE, how would you rate the retrieved references according to the following five classes):

(a) *(a)*	Minat yang serta merta:..... *(Of immediate interest):.....*	____%	18-19
(b) *(b)*	Berminat tetapi boleh dikesan di tempat lain:..... *(Of interest but already found elsewhere):.....*	____%	20-21
(c) *(c)*	Berminat tetapi bukan untuk digunakan dengan serta merta:..... *(Of interest but not for immediate use):.....*	____%	22-23
(d) *(d)*	Minat tidak dapat ditentukan oleh sebab rujukan tidak memberi keterangan yang cukup:..... *(The interest cannot be determined because the citation does not provide enough details):.....*	____%	24-25
(e) *(e)*	Tidak relevan dan tidak berminat:..... *(Irrelevant and of no interest):.....*	____%	26-27
		100%	

7. Sila tandakan salah satu dari kemungkinan yang berikut berdasarkan profail anda.
(Please mark one of the following possibilities as far as the areas covered by your profiles are concerned):

(a) *(a)*	Anda bergantung dengan sepenuhnya kepada perkhidmatan maklumat berkomputer untuk mengesan rujukan yang sesuai. *(You rely now solely on computerized information service to locate suitable references):*	1	28

		Sila tanda dengan bulatan mana yang berkenaan *(Please circle appropriate code)*	Untuk Kegunaan Rasmi *(For Official use only.*
		Kod *(Code)*	Kolum *(Column)*
(b)	Anda merasa bahawa sistem maklumat berkomputer adalah tersangat berguna.	2	
(b)	*(You feel that computerized information service is extremely useful):*		
(c)	Anda menganggap bahawa sistem maklumat berkomputer adalah berguna selalu.	3	
(c)	*(You judge computerized systems to be frequently useful).*		
(d)	Anda menganggap bahawa sistem maklumat berkomputer hanya berguna di sesuatu ketika sahaja.	4	
(d)	*(You judge such systems to be useful only occasionally).*		
(e)	Anda dapati bahawa sistem maklumat berkomputer adalah tidak berguna dan anda lebih gemar menggunakan cara yang tradisional untuk mendapatkan maklumat.	5	
(e)	*(You find a computerized information system of no utility and you prefer to stick to traditional information seeking methods).*		
8(i)	Adakah Perkhidmatan SISMAKOM telah memperbaiki pengetahuan anda mengenai wujudnya makalah-makalah dalam bidang pengkhususan anda? *(Has the SISMAKOM SERVICE improved your knowledge of the availability of journal articles in your field)?*		
(a)	Ya	1	29
(a)	*(Yes)*		
(b)	Tidak	2	
(b)	*(No)*		
(ii)	Sila komen mana yang berkenaan:	⌊_⌋⌊_⌋	30-31
(ii)	*(Please comment as appropriate):*		

		Sila tanda dengan bulatan mana yang berkenaan *(Please circle appropriate code)*	Untuk Kegunaan Rasmi *(For Official use only)*
		Kod *(Code)*	Kolum *(Column)*
9.	Adakah salinan foto yang dikirimkan kepada anda berguna? *(Are the photocopies which are supplied to you useful)?*		
	(a) Ya *(a) (Yes)*	1	32
	(b) Tidak *(b) (No)*	2	
10(i)	Bagaimana anda menilai rujukan dalam bahasa asing? *(How would you rate the foreign language references)?*		
	(a) Berguna *(a) (Useful)*	1	33
	(b) Tidak berguna *(b) (Not useful)*	2	
	(c) Tidak dapat ditentukan *(c) (Cannot tell)*	3	
(ii)	Haruskah Perkhidmatan SISMAKOM mengenepikan rujukan dalam Bahasa Asing? *(Should the SISMAKOM SERVICE exclude references in foreign languages)?*		
	(a) Ya *(a) (Yes)*	1	34
	(b) Tidak *(b) (No)*	2	
11(i)	Adakah cetakan berkomputer bagi profail anda digunakan oleh penyelidik yang lain? *(Are there any other persons using the output of your profile)?*		
	(a) Ya *(a) (Yes)*	1	35
	(b) Tidak *(b) (No)*	2	

	Sila tanda dengan bulatan mana yang berkenaan *(Please circle appropriate code)* Kod *(Code)*	Untuk Kegunaan Rasmi *(For Official use only)* Kolum *(Column)*
ii) Sekiranya ya, siapakah mereka? *(If so who are they)?*		
(a) Kawan sekerja di Jabatan yang sama *(Colleagues in the same department).*	1	36
(b) Rakan yang tidak ada kaitan dengan jabatan anda. *(Friends not connected with your department).*	1	37
(c) Pelajar anda *(Students under you).*	1	38
(d) Kakitangan yang lebih rendah di bawah pengawasan anda *(Subordinates under your supervision).*	1	39
(e) Penyelia anda *(Superiors for whom you work under)*	1	40
iii) Berapa orangkah termasuk anda sendiri menggunakan perkhidmatan tersebut? *(How many people make use of it including yourself)?* _____	⌊_⌋	41-42
Sila tandakan satu atau lebih aspek-aspek perkhidmatan yang perlu diperbaiki dalam pandangan anda: *(Please mark one or more aspects of the service in which improvements are needed in your opinion).*		
(a) Perlu pencarian maklumat retrospektif. *(Need for retrospective searches).*	1	43
(b) Format cetakan komputer adalah tidak memuaskan. *(The format of the computer output is not satisfactory).*	1	44
(c) Sistem maklumbalas bagi pengguna mengambil terlalu banyak masa. *(Users' feedback system takes too much time).*	1	45
(d) Rujukan yang utama tidak dipilih. *(Pertinent references are not retrieved).*	1	46

		Sila tanda dengan bulatan mana yang berkenaan *(Please circle appropriate code)*	Untuk Kegunaan Rasmi *(For Official use only)*
		Kod *(Code)*	Kolum *(Column)*
(e)	Mendapatkan salinan bagi rujukan yang dipilih adalah sukar.	1	47
(e)	*(Obtaining copies of the retrieved references is difficult).*		
(f)	Pegawai perhubungan untuk memberikan bantuan segera kepada pengguna adalah tidak mencukupi.	1	48
(f)	*(Not enough liaison officers to provide quick help to users).*		
(g)	Anda tidak ada komen, dan merasa bahawa sistem yang ada sekarang adalah memuaskan.	1	49
(g)	*(You have no critism to make & feel that the present system is satsifactory).*		
(h)	Komen-komen lain; sila sebutkan:	└──┴──┘	50-51
(h)	*(Any other, please specify):*		

	Sila tanda dengan bulatan mana yang berkenaan *(Please circle appropriate code)*	Untuk Kegunaan Rasmi *(For Official use only)*
	Kod *(Code)*	Kolum *(Column)*
13. Sekiranya pencarian maklumat retrospektif disediakan, sebutkan bilangan tahun kebelakangan yang anda fikirkan akan mencukupi dan memuaskan? *(If retrospective searches are provided, how many years of retrospective searching would seem reasonably satisfactory in your opinion).*		
(a) 1 tahun *(a) (1 year)*	1	52
(b) 2 tahun *(b) (2 years)*	2	
(c) 3 tahun *(c) (3 years)*	3	
(d) 4 tahun *(d) (4 years)*	4	
(e) 5 tahun *(e) (5 years)*	5	
(f) Lebih, sila sebutkan:.....tahun *(f) (More, please specify):.....years*	6	
14(i) Haruskah Perkhidmatan maklumat berkomputer diteruskan buat anda? *(Should computerized information service be continued in your case)?*		
(a) Ya *(a) (Yes)*	1	53
(b) Tidak *(b) (No)*	2	
(ii) Sanggupkah tuan atau organisasi tuan membayar supaya Perkhidmatan maklumat berkomputer ini dapat diteruskan? *(Would you or your organization be willing to pay to have the computerized information service continued)?*		
(a) Ya *(a) (Yes)*	1	54
(b) Tidak *(b) (No)*	2	

	Sila tanda dengan bulatan mana yang berkenaan *(Please circle appropriate code)*	Untuk Kegunaan Rasmi *(For Official use only.*
	Kod *(Code)*	Kolum *(Column)*
(iii) Sekiranya ya, berapakah anda atau organisasi anda sanggup membayar bagi satu database setahun? *(If so, how much would you or your organization be willing to pay annually per database)?*		
(a) $150.00 - $200.00 *(a) $150.00 - $200.00*	1	55
(b) $201.00 - $250.00 *(b) $201.00 - $250.00*	2	
(c) $251.00 - $300.00 *(c) $251.00 - $300.00*	3	

15. Sila komen mengenai apa sahaja perkara yang berkaitan dengan sistem maklumat berkomputer dan apa-apa perubahan yang difikirkan perlu dibuat. [Di mana sesuai, bahagikan komen anda untuk memudahkan analisa dibuat seterusnya].
(Please comment freely on any subjects related to a computerized information service and any possible improvements you would like. (Where appropriate, a clear separation of your different ideas will facilitate their subsequent handling).

Sila semak untuk mempastikan bahawa semua soalan telah dijawab. Ini adalah penting untuk penilai yang sempurna dan untuk memperbaikki sistem maklumat berkomputer kami. Kerjasama anda sangatlah dihargai.

Terima Kasih.

(Please check carefully to make sure that all questions have been answered. This is most important for proper evaluation and improvement of our information services. Your cooperation is greatly appreciated).

(Thank you).

Sila kirimkan soalselidik tidak tidak lewat dari .....
(Please return questionnaire by .....)

Kepada:
(To):

Cik Nur'in Omar,
Bahagian Rujukan dan Penerangan,
Perpustakaan,
Universiti Sains Malaysia,
Minden,
Pulau Pinang.

	Sila tanda dengan bulatan mana yang berkenaan *(Please circle appropriate code)*	Untuk Kegunaan Rasmi *(For Official use only)*
	Kod *(Code)*	Kolum *(Column)*

UNTUK KEGUNAAN RASMI
(FOR OFFICIAL USE ONLY)

KETERANGAN PROFAIL
(PROFILE INFORMATION)

NOMBOR PROFAIL:
(PROFILE NUMBER):

16. Sila beri ciri-ciri profail:
(Please indicate the characteristics of this profile)?

(i) Bilangan istilah dalam profail
(i) (Number of terms in this profile)

(a) *(a)*	1-10 *(1-10)*	1	56
(b) *(b)*	11-20 *(11-20)*	2	
(c) *(c)*	21-30 *(21-30)*	3	
(d) *(d)*	31-40 *(31-40)*	4	
(e) *(e)*	41-50 *(41-50)*	5	
(f) *(f)*	51-60 *(51-60)*	6	
(g) *(g)*	Lebih, sila jelaskan: *(More, please specify):*	7	

(ii) Sebutkan sudah berapa kali pindaan telah dibuat pada profail:
(Please indicate the number of times that amendments were made to this profile):

(a) *(a)*	1 *(1)*	1	57
(b) *(b)*	2 *(2)*	2	

			Sila tanda dengan bulatan mana yang berkenaan *(Please circle appropriate code)*	Untuk Kegunaan Rasmi *(For Official use only)*
			Kod *(Code)*	Kolum *(Column)*
	(c) *(c)*	3 *(3)*	3	
	(d) *(d)*	4 *(4)*	4	
	(e) *(e)*	Lebih, sila jelaskan : *(More, please specify):*	5	
(iii)	Berapa jam pada purata digunakan untuk membentuk profail (termasuk pindaan)? *(What is the average number of hours spent on profile building for this profile (including amendments)?*			
	(a) *(a)*	1-2 jam *(1-2 hours)*	1	58
	(b) *(b)*	3-4 jam *(3-4 hours)*	2	
	(c) *(c)*	5-7 jam *(5-7 hours)*	3	
	(d) *(d)*	8-10 jam *(8-10 hours)*	4	
	(e) *(e)*	Lebih, sila jelaskan : *(More, please specify):*	5	
17. (i)	Tandakan satu atau lebih aspek-aspek pembentukan profail di mana masaalah ditemui: *(Please mark one or several aspects of profile building in which problems were encountered):*			
	(a) *(a)*	Menghuraikan profail adalah sukar. *(Elaborating the profile is difficult)*	1	59
	(b) *(b)*	Manual profail sukar digunakan. *(The Profile manual is difficult to use).*	1	60
	(c) *(c)*	Kerjasama pengguna tidak mencukupi. *(User cooperation is lacking).*	1	61

	Sila tanda dengan bulatan mana yang berkenaan *(Please circle appropriate code)*	Untuk Kegunaan Rasmi *(For Official use only)*
	Kod *(Code)*	Kolum *(Column)*
(ii) Masaalah lain, sila jelaskan. *(Other problems, please specify):*	1	62
18. Apakah purata rujukan bagi satu keluaran SDI? *(What is your average number of references per SDI output for):*		
(i) CA Search		
(a) 1-10 *(a) (1-10)*	1	63
(b) 11-20 *(b) (11-20)*	2	
(c) 21-30 *(c) (21-30)*	3	
(d) 31-40 *(d) (31-40)*	4	
(e) 41-60 *(e) (41-60)*	5	
(f) 61-80 *(f) (61-80)*	6	
(g) 81-100 *(g) (81-100)*	7	
(h) Lebih daripada 100, sila jelaskan: *(h) (More than 100, please specify):*	8	

	Sila tanda dengan bulatan mana yang berkenaan *(Please cirlce appropriate code)*	Untuk Kegunaan Rasmi *(For Official use only)*
	Kod *(Code)*	Kolum *(Column)*
(ii) FSTA		
(a) 1-10 *(a) (1-10)*	1	64
(b) 11-20 *(b) (11-20)*	2	
(c) 21-30 *(c) (21-30)*	3	
(d) 31-40 *(d) (31-40)*	4	
(e) 41-60 *(e) (41-60)*	5	
(f) 61-80 *(f) (61-80)*	6	
(g) Lebih daripada 80, sila jelaskan: *(g) (More than 80, please specify):*	7	
Sila tandakan purata peratus rujukan yang berguna bagi profail ini. *(Please indicate the average percentage of useful references for this profile).*		
(i) CA Search		
(a) Kurang daripada 10% *(a) (Less than 10%)*	1	65
(b) 11-30% *(b) (11-30%)*	2	
(c) 31-50% *(c) (31-50%)*	3	
(d) 51-70% *(d) (51-70%)*	4	
(e) 71-100% *(e) (71-100%)*	5	

		Sila tanda dengan bulatan mana yang berkenaan *(Please circle appropriate code)*	Untuk Kegunaan Rasmi *(For Official use only)*
		Kod *(Code)*	Kolum *(Column)*
(ii)	FSTA		
(a) *(a)*	Kurang daripada 10% *(Less than 10%)*	1	66
(b) *(b)*	11-30% *(11-30%)*	2	
(c) *(c)*	31-50% *(31-50%)*	3	
(d) *(d)*	51-70% *(51-70%)*	4	
(e) *(e)*	71-100% *(71-100%)*	5	

Kirimkan jawapan anda tidak lewat dari .....

Kepada:

Cik Nur'in Omar,
Bahagian Rujukan dan Penerangan,
Perpustakaan,
Universiti Sains Malaysia,
Minden,
Pulau Pinang.